

Remarks

Reconsideration and allowance of all pending claims are respectfully requested. Claims 1-4, 6-14, 16-25 & 27-34 remain pending. Of these claims, Applicants gratefully acknowledge the indication of allowability of claims 8, 9, 18, 19, 29 & 30.

Substantively, claims 1-4, 6-7, 10-14, 16-17, 20-25, 27-28 & 31-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ellsworth et al. (U.S. Patent No. 6,453,344; hereinafter “Ellsworth”) in view of Zalewski et al. (U.S. Patent No. 6,260,068; hereinafter “Zalewski”). This rejection is respectfully, but most strenuously, traversed and reconsideration thereof is requested.

By this amendment, Applicants amend independent claims 1, 11, 21 & 22 in a *bona fide* attempt to advance prosecution of the application. Specifically, the independent claims are amended to characterize the technique as employing a workload manager to dynamically adjust configuration of the partition based on workload of a logical partition. The workload manager performs the automatically evaluating, automatically determining, and dynamically adjusting steps previously recited. Support for the amendment can be found throughout the application as filed. For example, reference the discussion at pages 30-34 of the specification, as well as FIG. 7 of the application. No new matter is added to the application by any amendment presented.

To summarize, Applicants present in one aspect (e.g., claim 1), a method of managing logical processors of a computing environment. The method includes: configuring a logical partition of the computing environment with one or more logical processors, and employing a workload manager to dynamically adjust configuration of the logical partition based on workload of the logical partition. The workload manager automatically evaluates workload of the logical partition, and automatically determines therefrom that the configuration of logical partition is to be adjusted. The workload manager then dynamically adjust the configuration of the logical partition in response to workload of the logical partition. Thus, in Applicants’ claimed invention, the workload manager automatically determines whether the logical partition is to be dynamically adjusted based on an automatic evaluation of the workload of the partition. This is very different from the teachings of Ellsworth and Zalewski, either alone or in combination.

Applicants respectfully submit that neither Ellsworth nor Zalewski teach or suggest the provision of a workload manager with functionality for dynamically adjusting configuration of a logical partition based on workload of a logical partition. Still further, Applicants respectfully submit that neither patent teaches or suggests that a workload manager accomplishes this by automatically evaluating workload of a logical partition, automatically determining therefrom that the configuration of logical partition is to be adjusted, and then dynamically adjusting the configuration of the logical partition in response to workload of the logical partition. In Applicants' management technique, workload of the logical partition itself drives the determination whether to dynamically adjust the configuration of the logical partition. This is clearly distinct from the teachings of Ellsworth, and the teachings of Zalewski.

Ellsworth describes a system in which the total number of available CPUs of the system are partitioned into one or more smaller pools of CPUs, such that a smaller pool contains the CPUs actually used by a user. This reduces the licensing costs of the system, since the user only pays fees for the CPUs of the pool, instead of paying fees for all available CPUs of the system. At a later time, the user may request additional CPUs to be added to the pool. That is, the user may request additional CPUs, if the user determines that more CPUs are desired and is willing to pay for these additional CPUs. Thus, in Ellsworth, any adjustment in the configuration is user determined and requested, and is not automatically determined based on an automatic evaluation as claimed by appellants.

In particular, Applicants submit that Ellsworth does not teach or suggest Applicants' claimed element of automatically evaluating workload of the logical partition and automatically determining therefrom that the configuration of the logical partition is to be adjusted. Instead, Ellsworth describes a manual process of reconfiguring an environment. That is, the user chooses whether the configuration is to be adjusted. This is specifically described throughout Ellsworth. As examples, in Col. 4, lines 1-2, it states: "[T]he user of the multiprocessor system 1-0 is able to establish domains ..." and in Col. 10, lines 4-15, it indicates that the customer may wish to change the number of off-line processors or the number of dedicated CPUs. Further, the examples of Cols. 10-11 recite that the user upgrades the machine and the user edits the profiles. Each of these examples, teaches that the determination to reconfigure is made by the user and the reconfiguration is at the user's request. It is not automatically determined based on an automatic evaluation, as claimed by Applicants.

This deficiency of Ellsworth is recognized in the Office Action, which states that Ellsworth: "... does not show the automatically evaluating workload of the logical partition and automatically determining therefrom that the configuration of the logical partition is to be adjusted." The Office Action relies upon Zalewski for this feature. However, Applicants respectfully submit that Zalewski also fails to teach or suggest at least this feature of their claimed invention.

The Office Action states that Zalewski teaches a partition is automatically evaluating its workload based upon a request from other partition for available resource (column 4, lines 60-65, "a first operating system ... into an idle state"). This characterization of the teachings of Zalewski is respectfully traversed.

Column 4, lines 60-65 of Zalewski state:

In accordance with this model, a first operating system instance which requires a resource first requests the resource from a second instance. In response to this request, the second instance determines whether it can spare the resource, and if so, begins to bring the resource into an idle state.

The Office Action further explains at page 6, that "it is inherent to one of ordinary skill in the art that the determination must evaluate how much of a workload it currently handles before it can give up an available resource." Thus, Applicants understand the interpretation of Zalewski as alleging that their recited functionality is inherent in the process described therein. This conclusion is respectfully traversed.

The doctrine of inherency is well-settled in patent law, and is best described in an excerpt from Hansgirk v. Kemmer, 26 C.C.P.A. 937, 102 F.2d 212, 40 U.S.P.Q. 665 (1939):

Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. [citations omitted.] If, however, the disclosure [of the cited reference] is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well-settled that the disclosure should be regarded as sufficient [to anticipate the claimed invention].

Id. at 940, 102 F.2d at 214, 40 U.S.P.Q. at 667; Stoller v. Ford Motor Co., 18 U.S.P.Q. 2d 1545, 1547 (Fed. Cir. 1991); Tyler Refrigeration v. Kysor Industrial Corporation, 227 U.S.P.Q. 2d 845, 847 (Fed. Cir. 1985); Ex parte Levy, 17 U.S.P.Q. 2d 1461, 1464 (B.P.A.I. 1990); In re Oelrich and Divigard, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).

In Ex parte Levy, the Court stated that “[i]n relying upon the theory of inherency, the Examiner must provided a basis in fact and/or technical reasoning to reasonably support the determination that the alleged inherent characteristic *necessarily* flows from the teachings of the applied prior art.” Ex parte Levy, 17 U.S.P.Q. 2d at 1464 (lengthy citation omitted) (*italics added*). The Office Action has neither pointed to any passage in Zalewski where there is an automatic evaluation of workload of a logical partition (by a workload manager when determining whether to dynamically adjust configuration of logical partition), nor set forth any technical reasoning to support an inherency rejection of the cited functional language. Numerous valid alternative interpretations for Zalewski’s teaching that the “second instance determines whether it can spare the resource” are possible.

For example, this determination could be a process as simple as determining “if I give up the requested resource, will I have any resources left to use?”, which would essentially comprise a binary switch, and not relate to an evaluation of the workload of the logical partition. Whether an instance can spare a resource thus does not necessarily imply evaluating workload of a logical partition. As a further example, each logical partition could be assigned a minimum number of resources, and the second instance determining whether it can spare the resource may involve a determination whether the instance is above the minimum number. Again, this determination does not involve evaluating workload of the logical partition. In view of these possibilities, Applicants respectfully submit that the Examiner has not proved a basis in fact to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of Zalewski. Absent such a showing, it is well established that claims are to be read in their entirety, including any functional limitations presented therein.

Since none of the other references of record are believed to teach, suggest or imply the above-noted deficiencies of Ellsworth and Zalewski when applied against their independent claims, Applicants respectfully submit that one of ordinary skill in the art would not have considered their claimed technique for dynamically adjusting configuration of a logical partition

in response to workload of the logical partition obvious in view thereof at the time this application was filed. Thus, Applicants respectfully request withdrawal of the stated rejection.

Still further, Applicants' amended independent claims recite that a workload manager dynamically adjusts configuration of the logical partition based on workload of the logical partition. This dynamic adjustment includes automatically determining by the workload manager based on workload of logical partition that the configuration of the logical partition is to be adjusted, and dynamically adjusting the configuration of the logical partition in response to the workload of the logical partition. A careful reading of Ellsworth and Zalewski fails to uncover any discussion of a workload manager *per se*, let alone a workload manager which dynamically adjusts configuration of a logical partition based on workload of the logical partition as recited by Applicants in their independent claims. The reconfiguration approach of Zalewski is a "push" model in which resources are controlled by an owning partition and must be released by that partition before they can be migrated to another partition. This is different from Applicants' recited approach wherein a workload manager itself dynamically adjusts configuration of a logical partition. In Applicants' approach, this dynamic adjustment occurs without negotiating with any other logical partition of the computing environment (see dependent claims 32-34).

For at least the above reasons, Applicants respectfully reconsideration and withdrawal of the obviousness rejection to the independent claims presented. Neither Ellsworth or Zalewski teach or suggest employing a workload manager to dynamically adjust configuration of a logical partition based on workload of logical partition *per se*. Further, neither patent teaches that the workload manager accomplishes this by automatically evaluating the workload of logical partition, and automatically determining therefrom that the configuration of logical partition is to be adjusted. Yet further, neither patent describes or suggests that the workload manager then dynamically adjusts the configuration of the logical partition in response to the workload of the logical partition. The Office Action acknowledges that Ellsworth does not show any automatic evaluation of workload of the logical partition, let alone an automatic determination therefrom that configuration of the logical partition is to be adjusted. For a teaching of the subject matter, the Office Action relies upon Zalewski, and more particularly, an inherency argument with respect to certain language presented therein. However, as noted above, various interpretations are plausible for the cited lines of Zalewski, and as a result, the Office Action fails to provide a

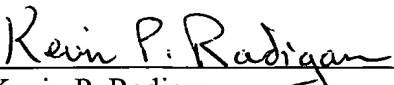
basis in fact and/or technical reasoning to support the alleged inherent characteristic as necessarily flowing from the teachings of the applied prior art. Absent this showing, it is well-settled that claims are to be read in their entirety, including any functional limitations presented therein. Thus, Applicants respectfully request reconsideration and withdrawal of the obviousness rejection to the independent claims presented.

The dependent claims are believed allowable for the same reasons as the independent claims, as well as for their own additional characterizations. Amended dependent claims 2, 12 & 23 each recite that the automatically evaluating workload of the logical partition by the workload manager includes automatically evaluating at least one of capacity assignment or capacity use of the logical partition. Neither applied patent teaches or suggests such functionality. Further, claims 7, 17 & 28 recite that the workload manager automatically determines that the configuration of the logical partition is to be adjusted by employing a predefined equation in association with the evaluated workload of the logical partition. Since neither applied patent teaches or suggests evaluating workload of the logical partition *per se*, then neither patent can teach or suggest Applicants' further functionality of automatically determining the configuration of the logical partition is to be adjusted employing reference to a predefined equation. Claims 10, 20 & 31 add the further characterization of comparing a result of the predefined equation with one or more thresholds to determine whether the adjustment is to be made. Again, the use of a predefined equation, and then the subsequent comparing the result thereof to thresholds in determining whether or not to dynamically adjust, comprises functionality that would not have been obvious to one of ordinary skill in the art based upon the applied Ellsworth and Zalewski teachings. Neither patent discusses evaluating workload of a logical partition *per se*, let alone using a predefined equation to obtain a result based thereon that is then compared with thresholds to determine whether to dynamically adjust configuration of the logical partition in response to the workload of the logical partition.

For all the above reasons, Applicants respectfully submit that all claims are in condition for allowance, and such action is requested.

Applicants' undersigned attorney is available should the Examiner wish to discuss this application further.

Respectfully submitted,


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